

## **ABSTRACT**

A hydrocarbon fuel is either imperfectly combusted or thermally decomposed in a reactor 11, thereby producing a high-temperature gas flow containing fullerenes and soot. Then, the gas flow from the reactor 11 is cooled in a range of over 600 to 900 °C by a temperature adjustment unit 12. Consequently, the cooled gas flow is introduced to a first filter, and the soot contained in the gas flow is removed. The gas flow having passed through the first filter is further cooled to collect the fullerenes as solid. In this case, a second filter is used according to need.